ACTION

FOR THE AUTOMOTIVE AIR CONDITIONING AND COOLING SYSTEM PROFESSIONAL

January/February 2012

2011 Pioneer Award Honorees

Heating Up a Cooling Aftermarket

MACS Mobile Air Conditioning Society Worldwide

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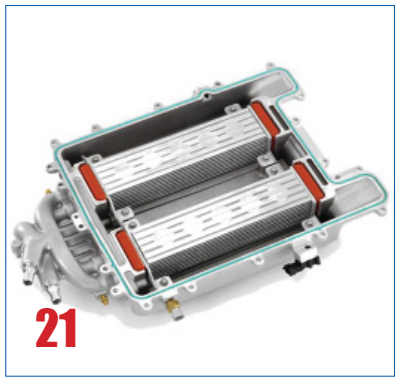
January / February 2012 www.macsw.org

FOR THE AUTOMOTIVE AIR CONDITIONING AND COOLING SYSTEM PROFESSIONAL

ACTION



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MACS Tech Help Number

MACS Members please note: The phone number for technical help is

866-502-0068.

It is available Mon-Fri, 8 a.m.-5 p.m. Central time.

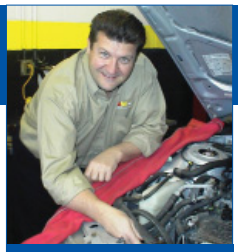
Mobile Air Conditioning Society Mission Statement

To be the recognized global authority for the mobile air conditioning and heat transfer industry by:

- Providing training and education for the mobile air conditioning and heat transfer industry.
- Providing a forum for exchange of trade information on a regional, national and international basis.
- Facilitating business between all segments of the industry.
- Providing information on legislative and regulatory initiatives that affect the industry and advocating for the industry to legislative bodies.

On the cover:

On the cover: A soon to be tested vehicle awaits attention in Behr's Troy, Michigan climatic test chamber.



Andy Fiffick
MACS Chairman

Outlook

Trust

Trust is "reliance on the integrity, strength, ability, surety, etc., of a person or thing; confidence." After viewing all of the negative press, Internet, and broadcast journalism about our industry I often wonder if we can ever do anything to earn the motoring public's trust and change our industry's image.

I often discuss ways to improve our industry's image and gain trust by the motoring public with my coworkers and many of you at our annual convention. I have come to the conclusion that there really isn't anything we can do as an organization to change the perception of our industry; we just have to do it one on one with the client and individually in our shops. Trust must be earned and given freely.

You cannot touch it or hold it in your hands. You cannot buy or steal trust. It can't be traded or transferred to someone else. However, trust is a very tangible asset of your business and shows up as profits at the end of the month. It is a fact that businesses that are held in high regard and trusted by the public are worth more and are more profitable. Therefore, it would make sense for us to gain the trust of the motoring public; let's take a look at what we may do to earn more trust.

First, we must trust ourselves. I see too many of us who do not. This really amazes me because as a profession, we have most likely paid our dues for a very long time. Most of us started fixing things at a very early age. We took things apart and figured out how they worked. We fixed toys, vacuum cleaners, tricycles, bicycles, lawn mowers, scooters, and motorcycles. We graduated to vehicles by the age of 12 or 14. I don't think that dentists, lawyers or doctors started practicing their trade that early in life.

We continued our education in backyard garages, high school vocational classes and vocational schools. We purchased tools and testing equipment along the way and spent endless hours on perfecting their use. We continued our education throughout our careers and figured out how to repair things that nobody else can. We show factory engineers the error of their ways and find ways to repair their oversights. It is an endless learning process filled with smashed fingers, cut hands and sleepless nights. If anybody is deserving of trust, it is this group.

Secondly, we must trust our fellow technicians and our profession. We are all capable of mistakes, and we all cannot know everything. Praise your fellow technicians and your competitors. Show them the trust they deserve and help them learn. I see too many of us criticizing each other or the shop down the street. This is detrimental to our overall image. As the old adage goes, if you don't have something nice to say, say nothing at all.

Lastly, we must earn the trust of our clients. We must not insult their intelligence and shouldn't talk down to them. We must avoid misleading advertising and sales practices. We need to respect their privacy and their time. A customer without their vehicle is like a fish out of water. They are stranded and scared; many are mad and upset. Show empathy and respect their schedule and emotions. We must strive to charge a fair price, under promise and over deliver all of the time to earn their trust.

Remember that trust can and will pay great dividends in your business if you understand its meaning. Use it as your guiding principal in your business plan, and how we treat each other in our profession. It's only five letters, however; I believe that we individually and as an industry can make a huge impact on our image by paying homage to this one little word. ❄

Sincerely
Andy
Andy Fiffick
chairman-macs@macsw.org
440-667-3278

ACTION

Mobile Air Conditioning Society Worldwide (MACS)

Andrew Fiffick
Chairman & CEO
chairman-macs@macsw.org

Elvis Hoffpauir
President & Editor-In-Chief
elvis@macsw.org

Jim Taylor
Editor
jt@macsw.org

Marion Posen
VP Sales & Marketing
marion@macsw.org

Laina Casey
Graphics & Design Manager
mcasey@macsw.org

Corporate Offices
Mail To: P.O. Box 88, Lansdale, PA 19446
Ship To: 225 S. Broad St., Lansdale, PA 19446
Phone: (215) 631-7020
Fax: (215) 631-7017
E-mail: membership@macsw.org

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2004-11 IAMA Awards Winner

Jim Taylor

Expansion Valve

Your future is electric

On the face of it, that may not be news to you. Electric propulsion in one form or another is springing up everywhere, and almost every manufacturer on the planet is looking at providing some form of electro- propulsion on at least one model as soon as possible. Even the resurrected Delorean Motor Corporation has shown an operating prototype of an an all-electric DMC-12 that they hope to get into production by 2013.

Electrification is moving into the mainstream as well. Frito-Lay is debuting ten new all-electric delivery trucks in central Florida, and the company plans to have a total of more than 175 in service within a year. The company has stated that it has confidence in the technology and would not make the investment otherwise. That fleet, they say, will save half a million gallons of fuel each year.

Still another sign, if you need one: Exide batteries recently announced production of the 2,500,000th "micro-hybrid" battery in Europe. These are not futuristic units made of exotic unpronouncables; they are well developed and optimized lead-acid batteries in absorbent glass mat (AGM) or enhanced cycling mat (ECM) form. They're used in vehicles with "idle-stop" technology. We're just starting to see that here, but it's been featured in Europe for years. Two and a half million of them since 2009 should speak to the popularity of the idea.

Years ago, one industry buzz-word was the "beltless engine." It's day may be here as one by one, belt-driven systems succumb to the song of the electron. Electric A/C compressors are now as common as cats and can be found on anything from Prius to Peterbilt and Volt to Volvo. It still takes a lot of power to drive the compressor, but that power isn't being robbed directly from the crankshaft.

It's not impossible that you have already worked on a vehicle with an electric coolant pump, secondary pump or similar device. They're showing up on domestic, Asian and European products at every turn. Pull up a service manual and make yourself comfortable; you'll be seeing a lot more of these as the need for thermal management grows.

Even a classic performance item is not immune. The French company Valeo recently announced that, after acquiring a British technology company, they plan to become the first automotive supplier to offer a range of electric superchargers.

All this electro-drive is nice enough and it wouldn't be there if the designers and engineers didn't think it had some benefit. One benefit of driving a component, say a coolant pump or compressor, through a wire is that its speed or duty-cycle can be easily controlled. Only run the unit at full speed when you need to, and perhaps at half-speed when you don't.

The guess here is that most of what you'll see in your shop won't be motor problems; in general, motor technology is well developed and the products are robust. Instead – stop me if you've heard this one before – the problem will be in the control system.

The customer complaint "it doesn't work" may really mean "it's not getting the right message" and it's up to you to find out why. As we all know from experience, great engineering can be brought low by a corroded connector, and the finest motor in the world won't operate if a control module makes a decision based on bogus information from a sensor. Hybrids and EVs have brought us new and higher voltages in big orange-clad wires, but tracking the digital and low-voltage signals in the control systems is becoming the key to a shop's success.

Knowledge is power, but knowledge of power is the future.

You can reach Jim at jt@macsw.org

NEW from AIRSEPT

NEW! COMPRESSOR GUARD OE-FIT FILTER PLATES
PROTECT YOUR COMPRESSOR REPAIR FROM DEBRIS
- No line cutting
- OE-fit filter plates mate to hose block
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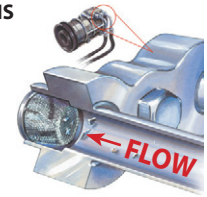

NEW! LINE SPLICE
REPAIR DAMAGED METAL LINES IN 5 MINUTES
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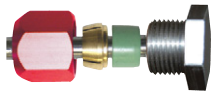
- Anti-vibration Tension Ring Resists Vibration Leaks
Patent Pending

NEW! LINE TERMINATOR
BLOCKS UNUSED A/C LINES
- Block underhood, reduces oil pooling, helps maximize front A/C performance



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Reader Reply No.2

Paul DeGuiseppi

Technically RELAY-ted

Before and After Today

Last October, I appeared on NBC's "The Today Show." In August, we had received a call from one of their producers asking if we could provide assistance with a feature they were working on. The basis of the story was a sting involving a 2007 Jeep Grand Cherokee. They took a clean, 39,xxx-mile vehicle to an AAA-approved shop where one of the ASE-certified Master Technicians gave it a stem to stern inspection. NBC wanted to make sure that all of the Cherokee's systems were in perfect operating order.

If something was amiss, they wanted to have it corrected, so the vehicle would be in tip-top condition.

Afterwards, they asked the tech if there was something he could do to make the A/C system malfunction, so it would blow warm air. He did what many of us might do – installed a defective compressor clutch relay. This tried and true bug is also often employed in technician competitions.

NBC then equipped the vehicle with in-cabin and underhood hidden cameras with audio recording, and took it to 10 different shops – five Jeep dealers and five national chains – to have the A/C system problem diagnosed. The producers also wore hidden cameras while they were talking to shop personnel. I'll tell you about the visual and aural evidence the devices captured after a little more background.

The producer asked me a number of pointed and reasonably technical questions about things shown on the video, as well as things he and the vehicle owner were told by shop personnel. He wanted to make sure that in their end story, events would be portrayed accurately, so they wouldn't end up condemning someone who didn't deserve it. He also wanted to make sure they would accurately expose the bad actors. Over the next couple of days, we had a few similar phone calls, and things culminated with him inviting me to visit a Today Show production studio to view the video and provide commentary on it.

The following week, an NBC-hired car drove my wife and me to 30 Rockefeller Plaza. The producer conducted a quick orientation, I met another person who was participating, Phil Reed from Edmunds.com, and the on-camera reporter Jeff Rossen. Into the studio we went. After micing us up and taking a few test shots, they started playing the video for Phil and me, recording our comments along the way.

I could probably fill half this magazine with everything I could say about what I saw. Since I can't do that, I'll provide a précis.

All five dealers correctly diagnosed the faulty relay. One left it at that. The other four said the vehicle needed other items or services, some having nothing at all to do with air conditioning. One dealer actually said the compressor exploded. The quotes to have these other services performed spanned a large range, and reached as high as $2000. Remember that this vehicle had just been gone over by an ASE Master Technician, and nothing was wrong with anything. Not only that, none of the other services the dealers wanted to perform were listed as necessary in either the Jeep's owner's manual, or the Chrysler-issued service manual that NBC obtained.

Three of the chain stores correctly diagnosed the faulty relay and left it at that. One of the others also diagnosed the faulty relay, but said other items were necessary (which of course, were not). The other chain store did not find the bad relay, and provided a completely bogus diagnosis with an accompanying list of "repairs" that would correct the problem.

With cameras rolling, I called spades spades. I strongly criticized the shops that provided misdiagnoses and tried to sell unnecessary work, and heaped praise upon the ones that performed with honest competency.

I've received mixed reviews on my performance. Many have been supportive, agreed with how I conducted myself, and given me kudos for pulling no punches. Others said I threw our industry under the bus. I'll address this latter group with the rest of my words here.

I hope everyone understands that TV spots are edited. It's unfortunate that the only people who got to view all the hidden camera video were NBC personnel, Phil Reed, my wife, and me—things were actually worse than they appeared in the reports that made broadcast. It's more unfortunate that not all of my reactions to the hidden camera video were seen by Today Show viewers. Of course, it cannot happen, but I challenge anyone with my level of automotive repair knowledge and ethics to react any differently than I did after seeing what I saw.

As far as throwing our industry under the bus – I'm sorry, but it's a fact that there are many among us who are unethical or incompetent. And throughout my tenure in this business, I have embraced opportunities to point that out so this was nothing new.

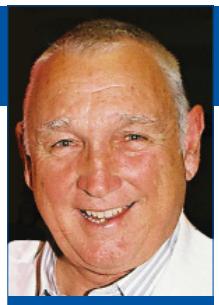
A re-reading of some of my past ACTION columns will certainly show this. I take the view that exposing the bad guys makes the good guys look even better. I'll never stop doing it, and I can't understand how anyone could be against calling out the crooks and imposters. The first step is admitting you have a problem.

Lastly, some critics said that simply replacing the relay and letting the car go was not good enough – that further items such as compressor clutch current draw or other checks should have been performed. To them I say proper or improper, that is real world, and I'm all about that (as those who know me can attest). With the A/C blowing cold and everything sounding and appearing OK, the vast majority of shops would indeed go no further. And in the vast majority of cases, they'd be justified doing so.

Whoever wants can disagree – but I know that's the way it is.

If you want to judge it all for yourself, here are the links to the reports.

Part 1: http://on.msnbc.com/pCKLgq
Part 2: http://on.today.com/qL51kw.



Ken Newton,
CEO. VASA

Knock, knock. Who's there?

If Labor, the political party which currently runs Oz, can lose more than 10,000 members between 2002 and 2010, what hope is there for a relatively tiny volunteer organisation representing aftermarket technicians working in air conditioning and electrics?

The dear old Labor party put itself under its own microscope at its national convention recently, when it was revealed that paid up members were leaving the party like rats leaving a sinking ship, with numbers nationally dropping from just under 50,000 to just under 40,000 in those few years. Add to that the fact that most of those who stay on do so out of loyalty and are the older members of society, and you have a recipe which is being copied in pretty well every club, association and not-for-profit society that you could name.

VASA is no different, although the numbers don't look quite as bad. Since it was born in 1993, VASA has always maintained around a 300 workshop membership.

In the early days, when VASA only represented the air conditioning installers and repairers, this number probably represented 80 percent of the workshops in Australia which specialized in climate control systems, and actually knew how to install, repair and maintain them. These days, since VASA merged with the auto electricians, the numbers can be watered down considerably.

VASA still has just under 300 members and the vast majority of those are people with grey hair or no hair at all, and a heightened sense of loyalty, a quality hard to find in the younger generation. Now 300 members might not seem a lot to you, but remember that Australia's entire population is roughly the same as America's top nine cities. And I remind you that American has 275 cities with a population in excess of 100,000, so you can begin to understand the scale of what I'm on about.

This trend away from structured social interaction is universal. You can blame any number of things. The Internet cops most of the blame, along with apathy, selfishness and a hedonistic streak in society generally. The local scout troop has lost its numbers, if indeed any still exist, and so too has the school parents and citizens associations, trade unions and every other committee and association you like to name.

Against this rather dismal background, VASA is holding its own. It might be small, but it has incredible power. VASA is your modern David of the biblical fable. The current Directors, led by Adelaide workshop owner Ian Stangroome, believe that if VASA did not exist, the industry would lose any clout it might have in the setting of regulations, training standards and workshop professionalism.

So Ian came up with a growth strategy, which the Directors have embraced with enthusiasm. The strategy is underpinned with the simple theory that if they can't see you, you don't exist. You see, VASA has no physical presence. Its affairs are run totally by volunteers. Its CEO (me) is a part time worker, the secretariat in Sydney is a filing cabinet in the aftermarket workshop run by treasurer Jeff Smit.

Board meetings are held at the stately home of the Royal Automobile Club of Australia in Sydney. The annual general meeting is held wherever the annual training convention happens to be at the time. Being faceless for most of the year is not healthy.

The Board's bold plan is to put its directors on the road, so to speak. As part of their general running around for their own business, they have volunteered to make personal calls on existing members at the rate of two a month for each director, and on non-member workshops at the rate of one a month. They have been armed with a kit of VASA information and deeds and a sheet simply called "What's in it for me."

Working on the principle that potential members would rather hear why VASA is worth joining from the rank and file members than from the directors, we asked some old timers why they stayed connected.

Their responses just wrench your heart out, don't they?

"What a great lifeline VASA is when you are deep in the mire and no one seems to want to help or you require someone to talk techo to, or run an issue by someone who understands. The VASA team are "it" – a fantastic organisation and great networkers. We have been financial members for 15 years." – Steve McCarthy in New Zealand.

"You just cannot put a monetary value on meeting other professionals and listening to their views. Learning that there is more to the industry than your own little world and finding where you fit in can be very rewarding."

– Peter Stubley, now a technical trade teacher.

"Networking has provided us with great contacts, many of whom have also become good friends. VASA members know how to enjoy themselves, too."

– Paul and Carolyn Henderson in New South Wales.

"The benefits of being a member of VASA are knowing you are part of a national organisation with knowledge and values that are for the good of the whole air conditioning industry." – Keith Davis in Western Australia.

Where do I join? ❄

Keith N. Leonard
Esquire

Style or substance?

The British author, Jonathan Swift (Gulliver's Travels, among other writings), was quoted as having said, "Vanity is a mark of humility rather than of pride." In a recent consumer survey, the most important factors that people consider in choosing a new vehicle are quality, safety, price, value, fuel economy, and performance. A vehicle's appearance did not make that list. Does that mean that a consumer will not allow vanity to determine the choice of a vehicle? Will he or she pick a vehicle that satisfies one or more of the preceding factors but that is plain, not or that is even downright ugly?

While beauty may be in the eye of the beholder, I think that most people would not say stylish when describing the Volkswagen Beetle. And it is likely that even fewer people would describe the Beetle with the same affection for its appearance that they would use in describing the appearance of a Porsche 911. Yes, they are in two distinctively different classes of cars, but remember that performance is one of the key factors that consumers consider when buying a car. The Beetle was sold in the United States from after World War II through 1979, before being resurrected in 1998. From 2002 to 2010 over 308,000 Beetles were sold in the United States. Thus, it has been a popular car despite its "looks".

I have previously examined the popularity of certain cars in the United States since World War II. From 1948 through 1978 the best selling car in America almost every year was the Chevrolet Bel Air/ Impala/ Caprice. In the 1980s, the Ford Escort and Ford Taurus and the Chevrolet Cavalier and Chevrolet Celebrity were best sellers. I am fairly certain that few buyers of those vehicles purchased those cars because the cars were stylish.

On the other hand, does an attractive car (for its time period) mean that it will be a good vehicle overall; satisfying more than one of a car buyer's considerations for selecting a vehicle? Sports cars are often viewed as the hottest looking vehicles, and are thought to be high performance as well. Unfortunately, quite a few sports cars are on lists of the worst cars ever built.

In the 1950s, fiberglass was used to lighten the weight of a vehicle. The most classic example of the use of fiberglass is in the Chevrolet Corvette. However, the 1958 Lotus Elite is not such a shining example of the use of fiberglass. While the car only weighed about 1,100 pounds, the unreinforced fiberglass could not handle the structural strain, resulting in the suspension mounts punching through the body. The 1970 Triumph Stag is another vehicle with great style and it had a Triumph V-8 engine. Unfortunately, that engine was found to be a total failure with timing chains that often broke and aluminum heads that commonly warped. Another stylish but mechanically deficient car of the 1970s was the 1976 Aston Martin Lagonda.

In the 1980s, the Pontiac Fiero was introduced and then discontinued after General Motors had spent a lot of money fixing its many mechanical problems. The 1984 Fiero was subject to 403 service bulletins, and recalls for engine fires, items that will not particularly endear a person to the car. It was not so much mechanical problems but rather emissions standards that turned the 1980 Chevrolet Corvette sold in California from the epitome of the machismo car into a hot looking Smart Car. The emissions requirements in California required the Corvette to be fitted with a 305 V-8 which put out 180 horsepower. Similarly, the base engine for the 1982 Chevrolet Camaro (and Pontiac Firebird) was a 2.5 liter, four-cylinder engine producing 90 horsepower. Not exactly the type of performance that would make the Camaro the (Ford) Mustang-fighter that it was originally conceived to be in the 1960s.

Chrysler and Maserati got together to produce the Chrysler TC by Maserati in 1989 to 1991. Unfortunately, what seemed like a good idea to produce an attractive vehicle resulted in an expensive Maserati LeBaron. The vehicle only produced 141 horsepower in a V-6 engine and suffered from many mechanical problems, necessitating the issuance of 53 service bulletins and multiple recalls. In 1997 Chrysler tried again and came out with the Prowler, which looked like a hotrod. However, the standard engine for the car was a 3.5-liter V-6 producing 250 horsepower. And the car did not even have a manual transmission to ramp up the hotrod feel of the car.

So-called luxury cars are not exempt from the look-good bad-ride syndrome either. In 2001 Jaguar wanted to have a luxury model to compete against the BMW 3-series and the Mercedes Benz C-class cars. The Jaguar X-Type produced that year turned out to be an English version of the Cadillac Cimarron and a financial loser for the company.

The 2002 BMW 7-series, another attractive car, came with " iDrive", a rotary dial and joystick controller situated on the center console. Unfortunately, the iDrive was very hard for drivers to use to control systems such as the heat and air conditioning in the car, and BMW was slow to respond to driver complaints about the system.

At its most recent awards program, eCityofStyle picked the following five cars as the most stylish and gave each of them an Auto Style Award: (1) the 2012 Hyundai Veloster; (2) the BMW 6-series; (3) the Fiat 500; (4) the Mercedes-Benz CLS63 AMG; and (5) the Range Rover Evoque. Though it is certainly no guarantee of the predicted reliability of any of those vehicles, earlier this year Consumer Reports ranked Mercedes-Benz and BMW among the least reliable automakers while Hyundai was ranked sixth among the thirteen automakers listed in the grading report.

Since cars were first introduced to the roads, inventors have come up with ideas that they thought would enhance the appeal of the vehicle. One very early example is the 1899 Horsey Horseless, which featured the wooden head of a horse on the front of the car. The inventor claimed that such a head would fool real horses on the road and make them less afraid of the car. Not a lot of horse sense in that idea. ❄

Remember that laws are constantly changing and are often not uniform throughout the United States. Do not place unqualified reliance on the information in this article. Always contact legal counsel for detailed advice.
If you have a particular issue, law or problem you would like to see addressed in a future column, please contact me at KLeonard@LeonardSciolla.com, or Leonard, Sciolla, Hutchison, Leonard & Tinari, LLP, 215-567-1530.

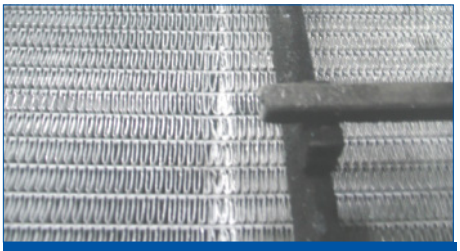
Not just skin deep

You've just received your new radiator and are about to begin the removal and replacement on your customer's vehicle. Pulling the shiny new unit out of the box, you look it over and read the installation instructions. Everything looks "Go" and you're ready to begin installation. Great!

But what if you open the box and some of the radiator fins look like they're going in the opposite direction? Or there appear to be brazing marks on the front of the radiator? What is cosmetically acceptable and what should be rejected?

The heating and cooling engineers at Delphi Product & Service Solutions recently developed a picture guide to inspecting your new radiator and knowing what is cosmetically acceptable and what is not. Radiators are more fragile than other underhood parts, and although suppliers take the strictest precautions when manufacturing, it is normal to have some surface imperfections. We'll present their guide in sections as space allows.

Brazing – Damaged centers due to braze frame



Accept: Air centers are marked due to core frame, but still operational. This is cosmetic only.

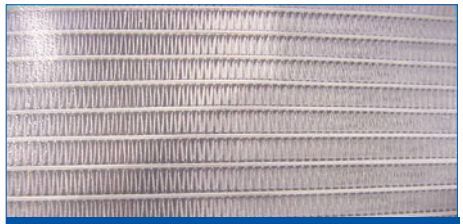
Reject: The air centers are ripped from the core due to removal of braze frame.

Flux Missing – Stained core

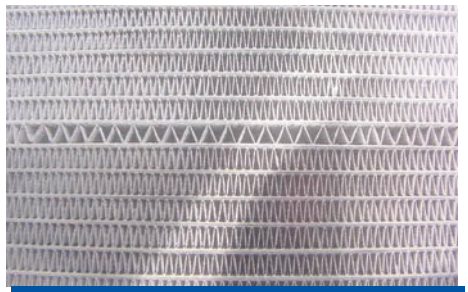
Accept: Radiator core without stains.

Reject: Core with black stains due to lack of flux during the braze process. This defect can cause leaks.

Center Stretching



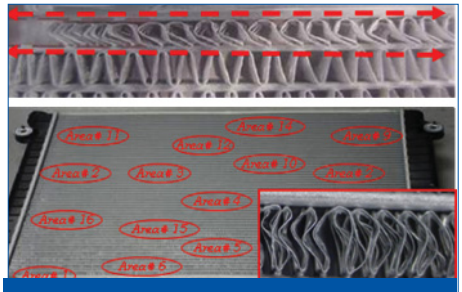
Accept: Air centers not stretched.



Reject: Any air center stretched. This is due to material condition or set-up problems on the machine.

Compressed Air Centers

Accept: Air centers not stretched.



Reject: Two or more air centers are compressed through their length in any part of the core. Also reject any core with more than 20 areas of compressed air centers greater than 10cm in the entire core.

Reader Reply No. 159

Virtual View

Link followed: wiki.answers.com/Q/How_much_does_it_cost_to_replace_freon

This link appeared after a search representing how a beginner might go about finding out the basics or necessary items to do a driveway recharge. "How much will it cost?"

"Wikianswers" is part of Answers.com, a site styling itself the "world's leading Q&A site." Registered members can post a question and somebody else with the knowledge will post the answer. Being a wiki, others can change or add to the original answer at any time.

This question was originally posted under the topic "Mercury Monterey" and then cross-referenced to HVAC. There is no apparent citation of dates for the question or the answer.

Q: *"How much does it cost to replace Freon?"*

A: *Freon (R12) is a refrigerant that started being phased out in the early 90s. The last I knew it was selling for about $50.00 a pound and a car usually takes about 2 pounds. So a simple evacuation, then recharge may cost about $150.00.*

This however probably wouldn't include diagnosis of the reason why it needs recharging in the first place (i.e. a leak) so replacing alone will most likely lead to another trip to the garage to charge it and actually find the leak. If the car is 1992 or newer it will almost definitely be equipped with the new refrigerant R134 which costs about $18.00 a pound making the repair that much cheaper. Also if it is equipped with an R12 system, the best recommendation is to have it retrofitted to R134. A simple and fairly inexpensive job.

Since the owner did not provide the year or any other identification for the vehicle, it is impossible to know what vehicle is under discussion. Mercury has used the Monterrey name on a variety of models from the 1950s through the early 2000s. Whether this vehicle truly needs R-12 or the newer R-134a is unknown.

The response, while not wrong, is un-informative to the owner because so little info is provided. Part of the repair or recharge cost will be based on shop time spent and that can't be known until the work begins and the problem is fixed.

Since no dates appear with the text, the prices mentioned seem to be far out of date. A check in mid-June 2011 shows 12-oz cans of pure R-134a retailing between $9 and $15 per can in retail outlets. R-12 is still available; one reputable supplier lists a single 12-oz can at $29 (just under $40/ lb.) and 30-lb tanks for $675, equivalent to $22.50 per pound.

The primary faults here are that the information is extremely vague and (because nothing ever dies on the Internet) probably out of date on the pricing as well. Having read this reply, the owner may think himself well-informed, when in fact he has learned nothing of value. ❄

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Reader Reply No. 48

EU opens antitrust proceedings on 1234yf

The European Commission has opened antitrust proceedings concerning agreements between Honeywell and DuPont for the development of a new refrigerant for air conditioning systems in cars. It is also investigating whether Honeywell may hold and abuse a dominant position over the refrigerant that has been announced as a suitable replacement for the existing global refrigerant, which no longer meets environmental-protection standards. The opening of proceedings means that the Commission will examine the case as a matter of priority. It does not prejudge the outcome of the investigation.

A new refrigerant known as 1234yf, which is intended for use in future car air conditioning systems, was announced as a suitable global replacement for the previous refrigerant R-134a, which does not meet new EU rules as regards its global warming potential. The selection of 1234yf is the result of a process conducted under the auspices of the Society of Automotive Engineers, which represents the interests of all groups involved in the automotive sector.

The Commission is investigating complaints alleging that Honeywell International Inc. and E.I. du Pont de Nemours and Company have entered into anti-competitive arrangements as regards the development of the new generation of refrigerants. Specifically, the Commission will investigate whether joint development, licensing and production arrangements entered into between the two companies in relation to these refrigerants restrict competition on the markets. Such behavior may infringe Article 101 of the Treaty on the Functioning of the EU and Article 53 of the EEA Agreement.

The Commission is also examining whether Honeywell engaged in deceptive conduct during the evaluation of 1234yf between 2007 and 2009. It is claimed that Honeywell did not disclose its patents and patent applications while the refrigerant was being assessed and then failed to grant licenses on fair and reasonable (so called "FRAND") terms. Such behavior may also infringe European competition rules.

This investigation highlights the importance of ensuring that arrangements involving intellectual property contribute to innovation rather than holding it back.

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Reader Reply No. 6

TCCI Mfg/QUE Products opens new facility

TCCI Manufacturing/QUE Products of Decatur, Illinois and Ningbo, China celebrated the grand opening of a new, state-of-the-art manufacturing plant in Ningbo. The move results from five years of company growth, creating a need for a larger facility to accommodate new compressor assembly and expanded validation capabilities. The new 14,000 sq. meter facility became fully operational in November and provides additional office and lab space for a larger staff.

Vice President Richard Demirjian said, "We simply grew out of our current location. We have nearly doubled production every year for the past five years."

The new facility allows the company to assemble swash-plate and wobble-plate compressors on dedicated automated equipment. The company will now have the ability to produce QP7H15 wobble-plate compressors every 30 seconds, quadrupling the annual output.

T/CCI has manufacturing sites in Ningbo, China and Decatur, Illinois for designing and manufacturing heavy duty compressors and clutches for the mobile air-conditioning and refrigeration industries. The company supplies product for the heavy and medium duty truck, military vehicle, specialty vehicle, bus, agricultural and construction equipment, and transport refrigeration markets.

DENSO Corp consolidates aftermarket divisions

Denso Corporation has announced the formation of a new aftermarket division, based at the company's headquarters in Kariya, Aichi, Japan. The announcement was made at the recent AAPEX show. Until now, the company had 30 aftermarket companies worldwide; these companies will now be coordinated under one division.

A spokesman for the new Denso Aftermarket Business Unit noted that it "establishes a structure where the aftermarket is operated as an independent business entity apart from our original equipment business."

Industry Briefs

• The National Automotive Technicians Education Foundation (NATEF) President Bill Kersten has announced plans for his retirement effective March, 2012. He will remain as president until next March to complete current projects. Trish Serratore, has been named his successor.

• TTAC Parts Corporation of Mesquite, Texas, has announced that Wayne Malone has joined its inside sales and customer service team. Wayne brings over 23 years of mobile A/C experience to the job.

• In November the Car Care Council Women's Board presented a $2,500 scholarship to Michele Perez of Half Moon Bay, California.

Heating up a cooling aftermarket

For many shops and small distributors, Behr-Hella and their four-year old North American service organization may be the largest company you've never heard of. That's because many of their OEM parts install where they are not easily seen — often within cooling modules or behind a dashboard. However, both German-based parent companies are international giants with extensive contracts as suppliers to many global car and truck producers.

The company held a press day in mid-October at the Behr America technical center in Troy, Michigan and took that opportunity to re-introduce itself to the aftermarket. Both members of the joint venture have long and respectable histories of product development and innovation. Behr began manufacturing radiators over 100 years ago, and naturally grew into making components for all forms of heat exchange, including (many years later) air conditioning. Hella developed its reputation through both lighting and electronics, and today provides modules and controllers to vehicle manufacturers as well as custom designed lighting components.

With business in many countries, both companies foresaw the trend of increasing on-board computer controls, and joint ventures were formed in many markets. Behr-Hella North America began in 2005, concentrating at first on the heavy-duty truck market but quickly expanding into light vehicles and passenger cars.

The Georgia-based service subsidiary, Behr-Hella Service NAFTA, was formed in 2007 to concentrate specifically on the aftermarket in the United States, Canada and Mexico. "The aftermarket is anything that is not mass produced for an OEM," said Torsten Waldheim, managing director of Behr America Service Parts, "including special applications." He also noted that by 2010 the company had achieved significant growth through expanding its offerings from the initial HD and European lines into components for Asian brands as well.

Roland Grimm, head of product management for Behr Hella Service, defined the company's market position as "providing high quality products at a higher price with excellent service." While they continue to expand the light vehicle product lines, Grimm noted that they also see growth in the HD market due to increasing demands on engine cooling systems from fuel and emission regulations.

The list of available radiators, condensers, evaporators, heater cores, fans, actuators, and blowers continues to grow with a particular focus now on Asian marques. Distributors and WD's will be pleased to find

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Reader Reply No. 5

the company has all its parts included in the Activant (Epicor) and WHI systems. ACES and PIES data is under development, and all the HD truck parts appear on HDX.

Into the wind

No visit to the company's facility is complete without stepping into the climate chamber, and the facility manager, Fred Pumper, took pains to defeat the term "wind tunnel" in describing it. "It's not a wind tunnel in the aerodynamic sense," he noted. "For what we do, we're only interested in airflow to about the B (center) pillar of a vehicle, and particularly around the frontal area. A full-vehicle aerodynamic chamber requires a larger cross-section (room size) than we have."

But what the chamber can do is replicate any conceivable set of realistic driving conditions. Middle-of-the-rain-forest, moist and hot? Easy. Death Valley dry and even hotter? Did one last week. Mid-winter in Newfoundland with a stiff cold breeze? Yup. "The only thing we can't do is actually make it snow or rain because we have no way to recover the water from the floor," said Mr. Pumper, "but we can recreate the necessary temperatures and humidity exactly."

The climate chamber and its solarium replicate almost any intensity of sunlight in the correct spectrum (including passing clouds), control humidity to within 1.5 percent, can drop the temperature from 122° F to -22° F in three hours, and provide controlled, vaned airflow to 125 mph. A set of adjustable dynamometer rollers in the floor allow operation of multi-axle as well as light-duty vehicles.

On the day of our visit, an unnamed company was testing an unidentified product on a big blue class-8 tractor. The chamber was set to 110° F at 45 percent humidity with a light breeze – think midsummer in Louisiana. The truck was being heat-conditioned for about three hours. At the end of that period, the test item would be started and its performance evaluated. A few guesses at the nature of the product under test were met with polite smiles, but no answers—that's the way the game is played.

While good science produces good test results, the chamber staff noted that there can be occasional surprises, too. For example, while once testing a moving component for proper operation in cold temperatures, they discovered that it worked properly but became too noisy when operating. That problem was fixed through a minor redesign and the component retested.

Walkabout

The headquarters building has a large product display area and attendees had time to stroll and learn about some of the new technology and products from the companies. One item shown was particularly interesting and raised some other questions as well.

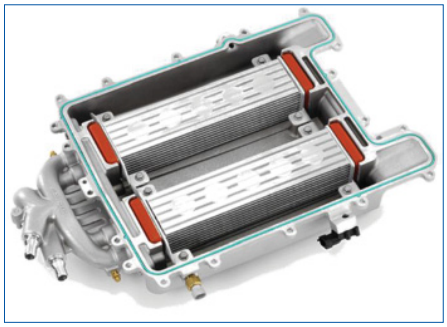
It's well known that the Chevrolet Volt uses a fluid loop to cool the battery pack(s); what isn't so well known is how the coolant is cooled. The answer is by the refrigerant system; it's using what many MACS members know as a secondary loop system and the heat exchanger or chiller, made by Behr, was on display. Additionally, this Volt system operates on an as-needed basis, controlled by a variety of computer signals.

The Volt's chiller is palm-sized but delivers adequate coolant cooling when necessary.

We asked one of the host engineers about the development of secondary loop systems both in general and with regard to cabin climate control. With such a system, all the refrigerant could be kept under the hood, allowing use of alternate chemicals and a smaller charge as well. "They are under study," he said, "but one stumbling block is how to dehumidify the cabin air for defrosting the windshield. "

Other interesting products were on display as well. The company furnishes the charge-air cooler for the supercharged Corvette, and a unit was available to handle. We were assured that although the air coolers appear relatively small, they are more than adequate for the task.

Reader Reply No. 7



The market growth of hybrid and electric vehicles has brought many opportunities and challenges to suppliers and the coming addition of idle-stop (or stop-start) systems on gasoline engines will add to the challenge. One of the many new products is the storage evaporator, one that holds sufficient refrigerant to provide A/C cooling for about a minute, even when the engine and compressor are off. The technology also reduces the on-time for an electric compressor on a hybrid or EV. It's likely you'll be seeing more of these evaporators soon across all makes.

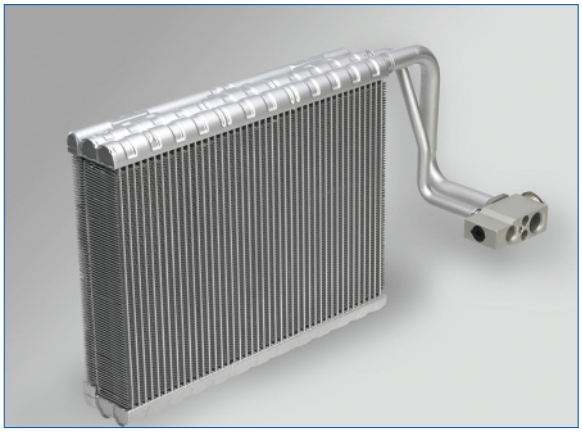
We also saw pictures of the company's A/C service machine for the R-1234yf systems soon to appear in Europe. The obvious question: will it be available in North America? "We expect so," they said.

Chatting about that new refrigerant led to a larger discussion of alternates, and specifically CO_2 for mobile A/C systems. What is the status of carbon dioxide (R-744) systems in Europe?

"It is dead there," said one of our hosts. "The costs were too great. We had very much research involved in this for many years." He smiled and shook his head slowly, "Those costs are gone. We did learn a lot though."

Down the road

The company stands ready to meet coming challenges from the vehicle manufacturers. The growing concerns of increased fuel efficiency, reduced emissions and the introduction of new powerplants all require existing technologies to be updated as well as the development of new, efficient thermal management products. Behr-Hella is confident that they can build on past successes and achieve new ones for both the OEMs and the aftermarket. ❄



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Reader Reply No. 99

Refrigerant Oil: What you can't see can warm you

by Eugene Talley and Matt Dixon, Assistant Professors of Automotive Technology, SIU Carbondale, Illinois

What superhero's power would be best for fixing vehicles? Would it be psychic clairvoyance, X-ray vision, or maybe just the patience of a saint? In the area of automotive air conditioning diagnosis, any of these would be helpful. Fantasy won't make such powers a reality, especially the patience. Reality grounds the competent technician with a working knowledge of system operation, decent service information, and hopefully an accurate recovery/recycling/recharging (RRR) station. Refrigerant oil charge is a fuzzy, often imprecise science. There is often much we don't know and can't see, and what can't be seen, can warm you.

So how would the refrigerant oil charge ever become wrong? Let's review some of the ways: Has the system ever been opened or have any components been replaced? Has a previous collision provided a new condenser? Has a compressor ever been installed and if so, was it shipped dry or full of oil? Did the installer drain and measure what came out of the old compressor? Was the correct type and quantity of oil installed and did the measurement units get properly converted?

Was the level of the recovery machine oil drain bottle observed? Was the proper service information used? Did someone install an off-the-shelf product on their own? Hopefully the point is made—our knowledge about actual refrigerant oil charge is often limited.

The possible causes for A/C performance concerns include incorrect refrigerant charge, obstructed airflow, faulty fans, neglected cooling systems, blend door problems or metering valve issues. Who thinks about oil charge? If excessive oil is the cause some may say "I can rely on my trusted recovery machine to extract any extra oil during system service" but in many cases, it isn't true.

We thought it was time to experiment with excessive oil in a system to see the real-world effects on cooling performance. Our plan was to account for oil movement due to gravity by using vehicles with both a high mount and a low mount compressor. The high-mount choice was a 2003 Ford Ranger which uses an orifice tube and mechanical clutch fan. The low-mount compressor was on a 2007 Dodge Caravan with a TXV, electric cooling fans and rear air conditioning system.

The recovery/recycle/charging station in use meets J2788 specifications and its gauges were checked for accuracy, its scale calibrated and the oil bottles emptied before we started. The unit also had a recent filter change and vacuum pump oil service.

As expected, the low-mount compressor on the Caravan held more oil than the top-mounted unit on the Ranger.

The first round of tests were performed in December and it was cold outside. The shop was between 66° F and 69° F with very low humidity. This was part of the plan—the method to our madness was the simple fact that many major underhood jobs and collision repairs happen during the winter months. The A/C system will need to be recharged and checked for proper operation after these repairs. Will the system meet minimum performance standards when the warmth of summer arrives?

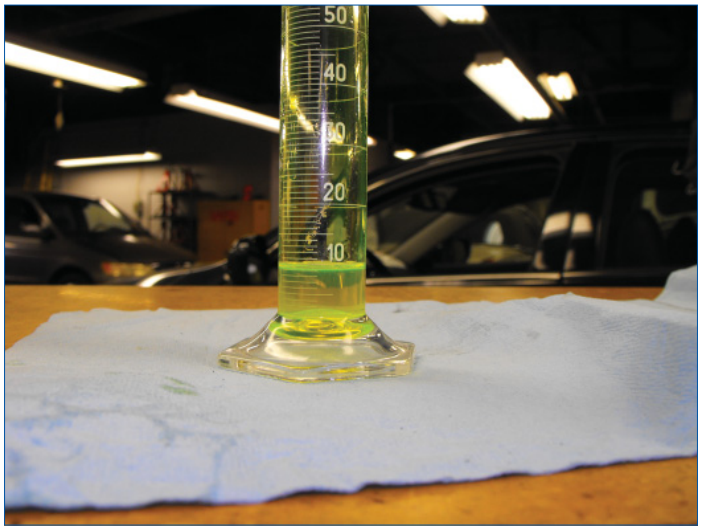
That was the second part of the test, conducted five months later. In May, when the weather in Southern Illinois was comfortably in the mid 80s with moderate humidity, some of the tests were repeated. Would the A/C perform properly for the customer?

Let's explain the process. Before performing the initial performance tests in cooler temperatures, we removed the compressors from both vehicles and drained any oil. We were looking to see how much oil had settled in the compressors when then had not been run for a long time. The Ranger compressor held 0.34 ounces and the Caravan held 1.0 ounce.

After reinstalling the compressors we ran the systems in an "under-oiled" state. We then added the small amount of oil back into the system (0.34 ounces for the Ranger, 1 oz for the Caravan) and re-ran the performance test with the system at a "factory fill" level.

Refrigerant Oil: What you can't see can warm you

Then we started over-filling. We added a total of 8 ounces of oil to each system in 2-ounce increments. Each 2 oz. addition was followed by a performance test and then a recovery, evacuation and recharge.



The oil recovery bottle on the RRR machine was closely monitored each time, but throughout the course of each recovery/recharge cycle the level in the oil recovery bottle never moved by more than a fraction of an ounce.

Once our "cold weather" tests were complete, the compressors were removed from each vehicle to measure how much oil was in the compressor. As expected, the Caravan (with the low-slung compressor) had more oil than the Ranger. The Caravan's compressor contained nearly 4 ounces of oil after the system was overfilled with 8 ounces of oil. The Ranger's compressor, on the other hand, held only 2 ounces after the 8-ounce overfill. The additional oil was distributed throughout the system, coating the walls of lines and components, and reducing their ability to exchange heat.

A performance test can be simple—how well does it cool?

Once the weather warmed up we began the second portion of testing. Removing all the extra oil added during the cold tests was impossible, and our testing would have to start with partially overfilled systems. Different starting points were required based on the amounts poured out of the compressors at the end of the cold tests. Because more oil was removed from the Caravan, it meant starting at factory fill plus 4 ounces; the Ranger would start at factory fill plus 6 ounces. Performance testing was completed once both vehicles were again at factory fill plus 8 ounces.

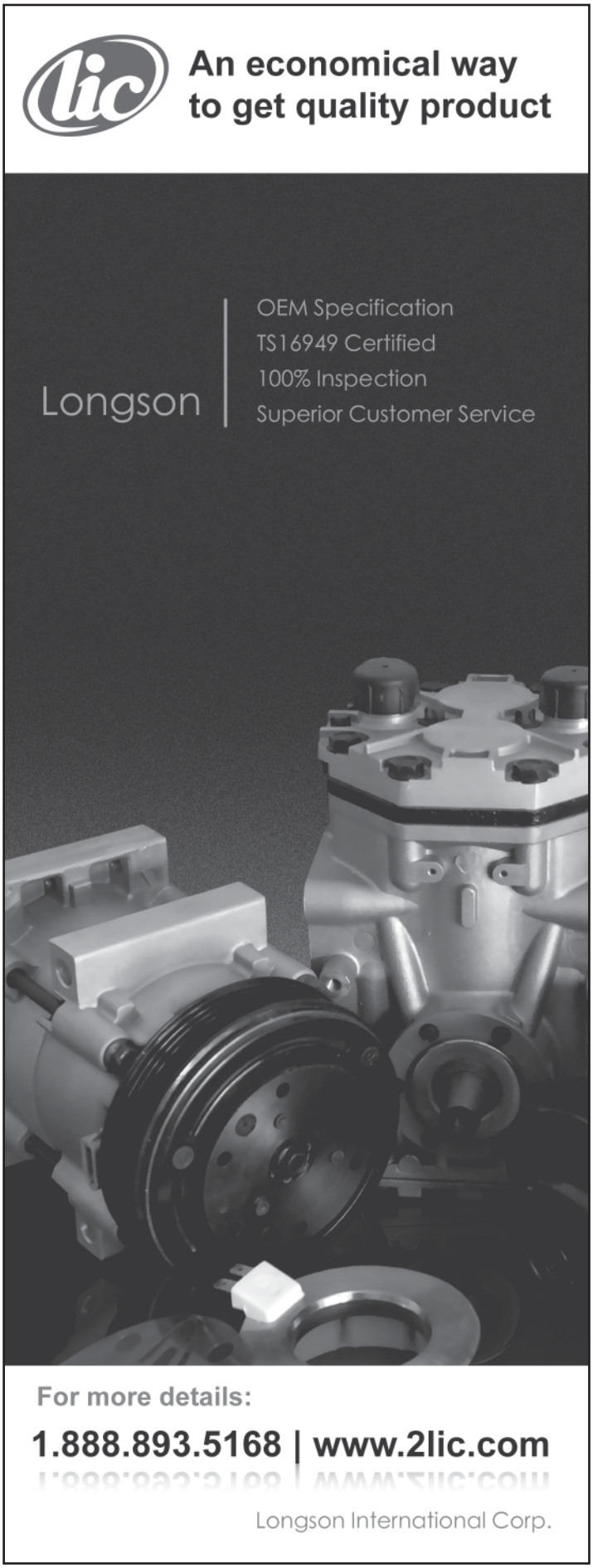
The Caravan gave back about half of the overfill amount.

To understand the results, let's look at the vehicles separately. Starting with the Ranger, the data in Table 1 shows a summary of the data collected. When the test data is compared to the performance specifications in the factory service information some interesting points are brought to light.

The performance test shows the interior vent temperature should be 44° F at an ambient temperature of 68° F (that is as low as the chart goes.) At 89° F the vent temperature should be 43° F. As you can see, in cooler temperatures the system had no problem meeting the factory specifications at any oil level. However, in warmer temperatures the vent output was nearly 10° F too high when overcharged with oil.

For the Caravan, Table 2 shows that the performance test vent temperature ranges (from the factory service information) are more generous than those for the Ranger. The left center vent temperature should be 36°- 46° F at 70° F (ambient), while at 80° the output range is 37°-49° F.

Similar to the results on the Ranger, the Caravan easily passed the performance test when the ambient temperature was cooler. And on a warmer day with higher humidity, the vent temperature was also about 10° warmer than allowable.



Reader Reply No. 13

Refrigerant Oil: What you can't see can warm you

Figure 1: 2003 Ford Ranger OT system with mechanical fan					
Correct Amount	+4 ounces over	+8 ounces over	Oil Level	+6 ounces over	+8 ounces over
67° 21%	66° 20%	67° 21%	Ambient Temp & Humidity	89° 53%	89° 53%
40°	43°	42°	Interior Left Center Duct Temp °F	49°	52°
77-124	85-130	75-120	High side PSI	175	225
22-39	22-39	22-38	Low side PSI	25	24

Table 1

When the high and low side pressures for both vehicles were compared to their respective service information, the majority of the readings were within the desired range. The few readings that were minimally outside the range(s) may not raise a red flag to a technician.

The purpose of our experiment was to determine the impact of a refrigerant oil overcharge. The temperature readings obtained during the performance tests indicate a tendency for inadequate cooling during higher outside temperatures. A/C system operation is obviously more common in hot weather, along with additional customer scrutiny.

Even when overfilled with refrigerant oil, both test vehicles met their A/C performance targets in cool ambient temperatures but were well outside specification (provided inadequate cooling) in warmer conditions. This clearly illustrates the need for caution during off -season vehicle A/C service.

There is no magic solution for knowing what was previously placed in the system, and the oil drain bottle cannot accurately gauge an oil overcharge. Performance tests in cool conditions are

Figure 1: 2003 Ford Ranger OT system with mechanical fan					
Correct Amount	+4 ounces over	+8 ounces over	Oil Level	+6 ounces over	+8 ounces over
67° 21%	66° 20%	67° 21%	Ambient Temp & Humidity	89° 53%	89° 53%
40°	43°	42°	Interior Left Center Duct Temp °F	49°	52°
77-124	85-130	75-120	High side PSI	175	225
22-39	22-39	22-38	Low side PSI	25	24

Table 2

not absolute and require careful interpretation. Carefully following procedures and using accurate service information remain important in reducing inaccuracy. Though oil overcharge may not be seen, the result may be quickly felt by the vehicle occupants. Once summer arrives a technician doesn't want to spend time diagnosing an oil overcharge. ❄

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2011 Pioneer Award honorees

by Marion J. Posen, MACS VP Sales and Marketing

The Mobile Air Conditioning Industry Pioneer Award was originally established by the International Mobile Air Conditioning Association (IMACA) in 1988. In 2003, the Mobile Air Conditioning Society (MACS) Worldwide assumed the role of continuing the tradition of recognizing individuals who have made outstanding career contributions to the mobile A/C and heat transfer industry.

On Thursday, January 19, 2012 the Mobile Air Conditioning Industry Pioneer Award will be presented to these three individuals at the MACS Worldwide Delphi Keynote Luncheon during the MACS 32nd Annual Convention and Trade Show. All three Pioneer Award honorees are participants in the 2012 MACS Trade Show; please stop by their booths and congratulate them.

Carlos J. Coll

Carlos J. Coll was born in Ponce, Puerto Rico on October 25, 1954. In 1976, he graduated from the University of South Florida, with a B.A in marketing. In 1979, he obtained his J.D. degree from the Inter American University Law School in Puerto Rico. Fluent in both Spanish and English, he practiced business law for eight years. He is currently learning Mandarin Chinese.

Carlos founded Universal Air Conditioner Inc. (UAC) in 1988 in Fort Worth, Texas. He was the first to do many things in the industry, truly a pioneer. In 1990, he developed a program for making aftermarket aluminum evaporators in Taiwan, R.O.C., and later developed relationships that led to additional product manufacturing in China.

He explains, "I observed that the aftermarket in the U.S., as well as in other countries, was in need of many A/C parts that the OEM sector was then single-handedly providing. I wanted to enact change in the aftermarket industry. In 1993, many people told me 'no one is going to purchase A/C parts made in China.' I knew I could prove them wrong."

From 1992 to 1996, Mr. Coll was instrumental in the development of a heat exchange facility, a drier-accumulator and hose assembly plant, and a commercial refrigeration facility manufacturing expansion valves in China. He was the first to tool and develop the Chrysler plate-fin evaporators to replace the copper tube and aluminum fin evaporators that at that time were the only aftermarket alternatives. He then developed an extensive aftermarket aluminum evaporator program for the U.S market.

In 1992, he became the agent for Shanghai EK Chor (now renamed Shanghai Sanden Behr), the largest compressor manufacturing facility in China. Through the support of SAICO, the largest automotive group in China, UAC became their aftermarket product development arm for North and South American exports. In a short amount of time, more than 600 OEM-quality compressors were developed for the A/C aftermarket.

Mr. Coll continued to develop close business relationships to complement the compressor line. He said, "The aftermarket requires so many compressor alternatives; I knew I had to search for other partners that could expand the UAC compressor line. Once I achieved this, the strength of the UAC compressor program would help each of our partners to expand their businesses. The market needed a supplier that could provide high-quality aftermarket compressors."

In 2006, Mr. Coll relocated the UAC facilities to Mansfield, Texas. The new 200,000 sq. ft. distribution

center was customized to support UAC's growth. In 2008, he was part of a team that acquired three compressor machining and assembly lines from Visteon's Connersville facility. Mr. Coll said, "The objective was to have access to aftermarket compressors that our current factories could not provide."

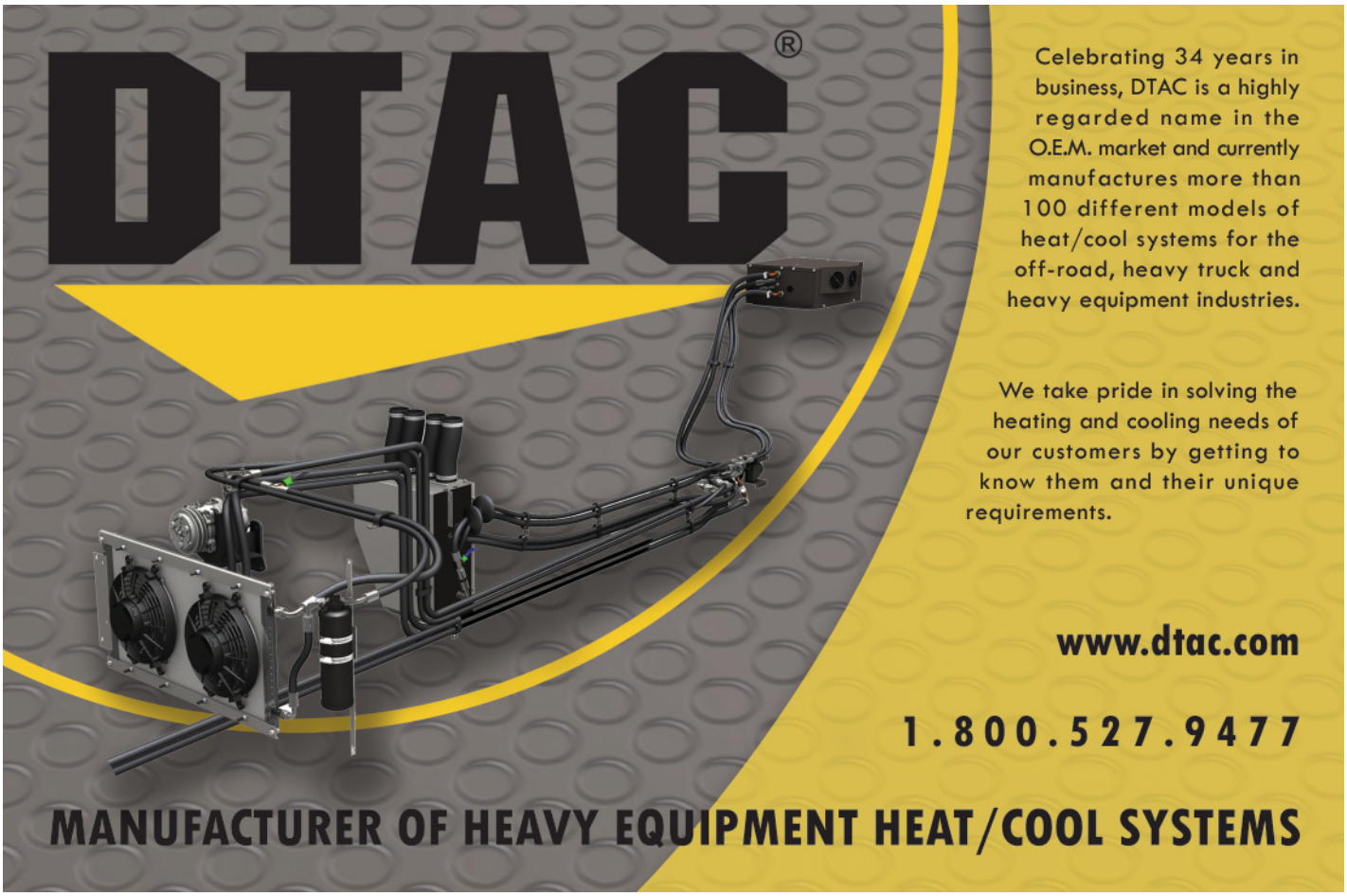
He continues to improve UAC's internal processes to be even more nimble and to react quickly to the changing market. He believes that business is "an ongoing cycle of learning and re-development." Universal Air Conditioning has been an active member of MACS since 1998, participating in and supporting the annual convention and trade show and other MACS programs.

Mr. Coll recently celebrated his 30th wedding anniversary with his wife Annie, and is the proud father of Francisco and Sophia. Francisco graduated from Vanderbilt University and is currently working in New York City. Daughter Sophia is a junior at the Wharton Business School at the University of Pennsylvania in Philadelphia. Carlos notes, "My children are my most valuable accomplishment."

Grace Davis

A native of Panama City, Panama, Grace Davis saw her future when she was young. "Early in my life I was exposed to different cultures which fascinated me so I decided to make international marketing my career. I graduated from the University of Panama with a degree in business administration," recalled Ms. Davis. During her early career she worked in banking for both the National Bank of Paris and First Chicago.

"When we moved to the United States 28 years ago, my intention was to remain in banking but after looking for positions at large banks, it proved to be a difficult task. After many interviews I decided to look for different options using my knowledge of international banking. I became an export manager for Rhino Products, a manufacturer of agricultural implements in Dallas. After Rhino sold to another group, they relocated and I did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Reader Reply No. 101

2011 Pioneer Award honorees

not want to move. I found a similar job at Frigicool and that is how I became involved in the mobile A/C industry," she said.

In 1989, Ms. Davis founded Omega Environmental Services in Dallas with the sole purpose of serving medium to large international customers who need to consolidate their purchases in the USA.

"We created added value to these customers through exemplary customer service," she said. "After 23 years of servicing the same niche market, we have expanded our offerings and we now cover 82 countries, and include other segments such as heavy-duty trucks, off-road vehicles and school buses with the same criteria as we began in 1989…excellent customer service."

Omega has been an active and supportive program member of MACS since 1992 and is always visible at the MACS Convention and Trade Show. Her advice for those entering the mobile A/C industry now is to "…have perseverance; don't let others tell you what you can or can't achieve. Be actively involved and stay current in the technological changes taking place in our industry."

Grace lives in Dallas, Texas with her husband Thom. She has a daughter and is grandmother of two. Her future includes the wish to "… start a non-profit organization in my native Panama to teach micro-business owners the basics of how to create and manage a profitable business. As a person, my goal is to live a Christian life, leading by example."

Wayne Rankin

Wayne Rankin was born in San Francisco in 1950 and moved to Reno, Nevada when he was 12 years old. Wayne's dad bought an auto repair business there and Wayne began working in his father's shop. Wayne's dad became an ARA dealer, installing A/C as an aftermarket add-on, and by 1966 Wayne had

charged his first mobile A/C unit.

After serving in the U.S. Army as a special-forces engineer Wayne attended the University of Nevada, Reno and obtained an accounting degree in 1974 and an M.B.A. in 1978. In 1976, he opened his own service and repair business and became a Frigette aftermarket A/C dealer and later became the largest Frostemp A/C unit dealer.

RANSHU has been a MACS member since 1993 and has become an enthusiastic and memorable exhibitor and sponsor at the annual MACS trade show. The company is known for their colorful (mostly pink) booth displays, sometimes featuring live animals including a pink llama, tropical birds and even a puppy.

Over the year's RANSHU has grown, carrying thousands of A/C parts and establishing five warehouses across the United States. Wayne lives in Reno, Nevada where he enjoys the beauty of the land and explores on his horse Woody. Wayne's two sons also work with him at RANSHU.

The Mobile Air Conditioning Industry Pioneer honorees are selected by the MACS board of directors. If you would like to nominate someone for consideration please contact the MACS office. ❄

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Reader Reply No.153

What puts a shop on top?

You know Andy Fiffick as a longtime MACS member, board officer and board chairman. You might also recognize his name as that guy who writes the first column, "Outlook," in every issue of ACTION magazine.

You might not know that Andy's business, Rad Air Complete Car Care, has grown to 10 locations in the Cleveland, Ohio area and that MotorAge magazine picked it as the "Top Shop" in the United States for 2011.

Rad Air was started as a small radiator and A/C shop in 1975 by three guys who, Andy says, "had trouble with fixing cars." He purchased the struggling company in 1986 and made it what it is today, a growing business that provides full vehicle maintenance, repairs and services in a mostly metropolitan area.

Andy has been fixing cars since he was a teenager, and still enjoys a bit of hands-on when the shop schedule permits it. What lessons has he learned along the way that can help you achieve success? According to Andy there are three golden rules:

1. First and most importantly, fix the car right the first time.
2. Charge a fair price.
3. Make sure the client is happy.

"Fixing a car right to us is a matter of pride. I don't care if it takes an hour, three hours or three days. The car better be repaired right," Andy says with determination. "Making a client happy sounds simple on the surface, but is probably the most involved, inclusive and hardest thing to do."

Making a client happy starts with the initial phone call. Advising the client is an important aspect of client satisfaction. "When you meet them at the counter, discuss the needs of the vehicle," says Andy. "We need to check and price the vehicle work properly. We advise the client on what they need or don't need. We finish the vehicle on time and clean. Writing the thank you notes goes along with all of this. If you make a client happy he or she keeps coming back."

"We look at a client as being a member of our family," Andy explains. "I believe we should have a relationship with our clients just like they do with their butcher, hairdresser, tax accountant, attorney, priest or any other professional in their lives. It's one of mutual respect. I respect what your vehicle needs and you respect what I need to do to perform that job.

We know how to take care of you and you trust us. That's why we have second or third generation families as clients. There's no pressure. If you come in for an oil change and I notice you're going to need a transmission service in another 30,000 miles I'm going to tell you. If you need it today I'm going to tell you. But I'm not going to make things up just to hit numbers."

His next tip: treat your employees right. All of the Rad Air technicians are paid by the hour, unlike many other facilities where there is a commission structure or a quota in place dependent upon the number and types of repairs performed.

Andy is also active in a number of service and trade organizations and has been a member of MACS Worldwide since 1987. He finds a lot of value in his MACS membership, "…being a member of MACS allows me to stay in tune with the changes in the industry and react to them in a very timely manner. Attending the training available at the conventions (it is second to none and very affordable) and being able to also see all of our vendors and new equipment at the same venue is an added benefit. I also learn just as much from my fellow technicians and business owners during the convention social events; I simply cannot pass up the learning opportunity during the MACS convention and trade show," Andy says.

What does Andy still have on his list to accomplish? His short answer is to have his business survive at the same level for other 36 years. He says, "Business is changing so fast that I feel that we never have enough training, nor enough new equipment, nor enough marketing and advertising. Therefore, we can still enhance many aspects of our business and we now need to become experts in social media to compete in the marketplace, and provide training to our staff on the emerging technologies to service the latest vehicles. If we can be here doing what we love for another 36 years, that would be a great accomplishment!"

MACS previews 2012 Mobile A/C Update training clinics

The training of technicians in the proper service and repair of mobile air conditioning systems is at the heart of the Mobile Air Conditioning Society Worldwide's (MACS) mission. MACS will add a new training clinic curriculum for their original MACS 2012 Mobile A/C Update Clinic.

The MACS 2012 Mobile A/C Update Clinic is an annual collection of the newest, cutting-edge service and repair information available to the working technician. Topics will include these and other topics:

- Another new antifreeze!
- Cooling fans and airflow issues
- Early notes on the Nissan Leaf and Chevy Volt
- "Eco" modes—what they are and how to test the systems
- Evaporator temperature sensors—some thoughts
- Hybrid compressor oil issues
- HVAC case actuator diagnosis and testing
- Testing relays and relay circuits
- The newest compressor

"The training material MACS presents in mobile A/C clinics is unique in that it is geared to aid the working technician to diagnose and repair mobile A/C and engine cooling systems properly and efficiently with the latest methods," explains MACS manager of service training, Paul DeGuiseppi.

MACS provides training on-demand at the request of interested repair facilities, and will hold a limited number of scheduled classes around the country and in Canada in 2012. Please visit the online training calendar at www.macsw.org under the training topic for the most current list of scheduled clinics. To learn more about scheduling a MACS mobile A/C training clinic please contact Marion Posen at 215-631-7020, ext 304 or e-mail *macsworldwide@macsw.org*.

MACS adds TSYS Merchant Solutions to member benefits menu

MACS members can now save money on payment processing. TSYS Merchant Solutions is offering exclusive savings to help reduce your cost of doing business. MACS members will be part of an exclusive payment processing program to include:

- Dedicated account management team
- Additional merchant procession services, including debit card acceptance and check verification and guarantee services.
- Free online statements and account access

Members of MACS can contact a TSYS Merchant Solutions consultant at 888-749-7860 or visit *tsysmerchantsolutions.com/assoc/gen*. TSYS joins the MACS Worldwide benefits menu which also includes discounts from Cintas, FedEX, Yellow Freight, HP Computers, Thrifty Rental Car, Mass Marketing health insurance and Evarts Tremaine Flicker business insurance including workman's compensation.

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Reader Reply No.113

MACS board member attends CIAAR

In early November, Mike Dawson of TCCI Manufacturing attended the China International Auto Air-conditioning and Refrigeration (CIAAR) exhibition in Shanghai. His attendance bolstered the friendly cooperation between the two organizations.

At the ribbon cutting, Mike was introduced as a MACS Board member, and in a brief address he noted the continued growth and success of the CIAAR expo. He invited everyone to the MACS Convention and Trade Show in January. Organizer Kim Yang responded with his thanks and noted that several companies had already been recruited to exhibit in Las Vegas.

Evarts Tremaine Flicker Insurance posts new website for MACS members

MACS members can save on all types of business and personal property insurance with Evarts Tremaine Flicker Insurance. MACS members can now learn about available insurance plans by visiting the ETC MACS member website at *www.etfco.com/macs*.

MACS honored with two Automotive Communications Awards

MACS Worldwide has been honored with two Automotive Communications Awards. The MACS Worldwide blog (*www.macsworldwide.wordpress.com*) was honored as the best business-to-business blog in the automotive aftermarket. Additionally, an article titled "Volt Cooling Overview" by ACTION editor Jim Taylor from the May 2011 issue of MACS ACTION magazine was honored as best business-to-business technical article.

The awards were presented November 1st during the Car Care Council Women's Board reception at the Sands Expo Center during the Automotive Aftermarket Products Expo (AAPEX).

"MACS is proud to have been recognized with these awards for our mobile A/C and engine cooling technical content," remarked Elvis Hoffpauir, MACS president and COO. "MACS has embraced both traditional and social media to serve our industry's need for accurate and timely technical editorial and we're proud to have been recognized for these efforts."

The Automotive Communications Awards are sponsored by the Car Care Council Women's Board and supported by the Automotive Communication Council. The awards applaud companies/agencies that provide automotive information through outstanding advertising, marketing and public relations efforts.

MACS's Paul DeGuiseppi appears on NBC Today show

MACS manager of service training provided expert opinion for NBC's Today show investigative reporter Jeff Rossen. The Today show installed a deffective compressor clutch relay, then took the "bugged" vehicle to different service providers to see what they would diagnose.

The video segments are available on the web. Find part one at http://on.msnbc.com/pCKLgq,and part two at http://on.today.com/qL51kw. The links are also on the MACS blog at macsworldwide.wordpress.com in the October blog posts.

In Memoriam

Joe Echols

Former MACS Director Joe Echols died on November 18th. Joe served on the MACS Board of Directors in 1993 and received the society's Pioneer Award in 2009. A native of Atlanta, he earned an associate's degree from Dekalb Community College and began his aftermarket career with SPX/Robinair in 1973. He became their regional sales coordinator in 1975.

In 1986, Joe founded J.A. Echols and Associates, a manufacturer's representative firm. In creating his company Joe had a vision for an organization of technically educated and motivated sales reps to not only sell products but to also educate the customer on the proper use of the company's tools, chemicals and equipment. Today, his company's motto remains: "When we educate, we sell!"

His company grew and prospered throughout the southeast and southwestern United States and Puerto Rico. Joe prided his organization on being at the cutting edge technically and using technology for the client's benefit. He was always looking ahead, and anticipating changes in the business. Several years ago he said, "The automobile industry is about to make a dramatic change in the way they build and fuel cars. This change offers a challenge to everyone to create new tools, new equipment and be a part of a historical change in the automobile industry. Be part of it!" His words ring true today.

Services were held on Nov 26th in Duluth, Georgia. The Echols family has requested that in lieu of any flowers or gifts, a donation be made to the National Brain Tumor Society.

Abnormal Blower Noise

2005–2011 Toyota Tacoma

Some 2005-2011 Toyota Tacoma vehicles may exhibit abnormal blower noises such as a ticking and/or clicking noise or a squealing noise.

Toyota says the best option is to replace the blower motor and fan assembly. While this has been a minor problem over the last several model years, Toyota has now consolidated the entire range of years and replacement part numbers to use one current replacement part.

First, confirm that the noise is emanating from the blower, then disconnect the negative battery cable. Next, disconnect the two retaining clips and the blower motor 2-pin connector shown in Figure 1.

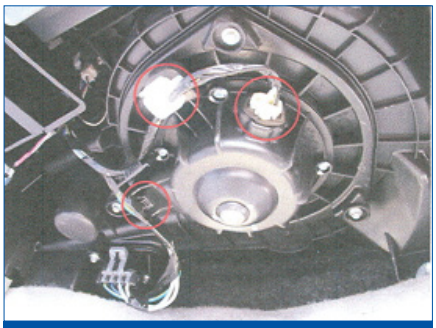

Figure 1

Remove the three mounting bolts shown in Figure 2 and remove the blower motor.

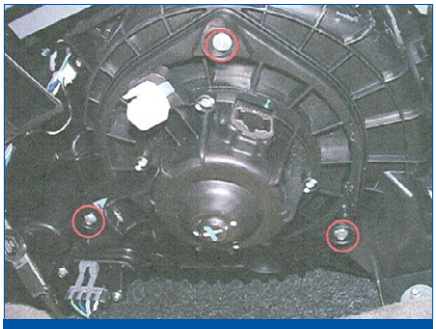

Figure 2

The new replacement blower motor and fan assembly (P/N 87103-04043) supersedes all previously issued part numbers.

Install the new blower motor and three mounting bolts shown in Figure 2 and connect the 2-pin blower motor connector and the two clips shown in Figure 1.

Lastly, reconnect the battery negative cable and confirm the blower motor operates correctly without the presence of noise before returning the vehicle to the customer.

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* Mini Relays- 4 & 5 Pin - 30/40 Amp Rating
* For Toyota/Lexus Specific
* For Acura/Honda Specific
* For Chrysler Mini Van - Cooling Fans - 07-96
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Reader Reply No.60

Uview improves MiST

UView Ultraviolet Systems announces changes to the MiST vehicle deodorizing solution. This new formula effectively attacks and eliminates odors caused by bacteria and mold in the vehicle. It features a new fresh scent and provides a cleaner and healthier driving environment. This new scented solution continues and builds MiST system's role as a healthy, value added service that benefits technicians and consumers alike. It's available now; ask for product no. 590250.

R.R. No. 101

Magnetic LED worklamp from Larson

Larson Electronics' Magnalight has released a new LED work light with a 20-inch long bendable goose-neck and double ball-joint magnetic mount. The LED6W-GNM provides high-output, white work area illumination equal to a 50 watt halogen lamp. The magnetic base provides 100 lbs. of gripping force and attaches to any ferrous metal surface.

The new unit is waterproof, shock and impact resistant and able to withstand the rigors of outdoor use. The ABS housing and polycarbonate lens protect the LED lamp assembly from damage. A standard cord plug provides simple connection to any outlet or extension cord without a transformer. View the entire line of Magnalight LED products at *www.magnalight.com*.

R.R. No. 102

Magic Adapter offers fast solutions

Custom hoses for specific models are very expensive, and not always available on the dealer's shelves for immediate delivery. The end user is forced to pay high costs and also to

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Reader Reply No.18

NEW PRODUCTS & SERVICES

wait for days before getting the car repaired.

Invented and produced in Italy, the patented Magic Adapter kit allows use of standard or alternate hoses for A/C repair. Repairs are now easier, faster and more profitable.

Three distinct kits are now available, including Alfa Romeo, Fiat, Lancia, Toyota and others with Denso systems; Audi cars; and Volkswagen - SEAT products. All kits can be easily customized, and it is possible to develop new products for specific applications.

R.R. No. 103

More from CSF

CSF continue to expand their range of top quality replacement radiators and condensers by adding models for popular late model vehicles including the '11-10 Acura MDX and ZDX, '11-07 Kia Rio, 2011 Mazda 2, '11-10 Toyota Prius and Prius V, and the radiator/condenser module for the '12-08 Infiniti G37 and Nissan 370Z. Visit www.csfradiators.com or contact your local CSF distributor.

R.R. No. 104

Bergstrom has next-gen heater control valves

Bergstrom Inc., a supplier of climate systems to the commercial vehicle industry, has launched its next generation heater control valve, a highly-compatible component with

WARNING: "Don't Spend Another Dime Marketing or Advertising Your Auto Repair Business Until You Read This"

If You Want to Make More Money From Your Auto Repair Business, Then This Could Be The Most Important Information You Will Ever Read. Find Out How To Get the Free Report and my $1,000 Guarantee...

Dear Shop Owner,

How would you like to double your income from your auto service business? Are you frustrated and tired of wasting money on advertising that just doesn't work? Would you like to increase your car count and get more new customers and referrals in a month than most shops get all year? Would it help if you could actually eliminate your competition? (*Even that 'Big-Box-Price-Cutting-800-Pound-Gorilla' that's got an advertising budget designed to squash you and actually drive you out of business?*)

If you answered '*yes*' to any of those questions, this could be the most important information you have ever read.

In my Auto Cooling System and A/C repair business, I suffered all the same problems that you're facing. I couldn't get a repair job unless I was '*discounting my way to success*'. I spent boatloads of money on advertising in magazines, newspapers, val-paks and flyers and every one of those ads got me the exact same results. ***Nothing!*** On top of that, I had competition that was '*eating my lunch*'. Business was so tough that for months on end, I had to take money out of my personal savings account just to cover shop expenses. It got to the point that I was staring bankruptcy right in the eye.

I was just about ready to give it all up until I discovered some amazing marketing strategies to promote my service business. I was introduced to these tactics by a friend who worked with one of America's leading equipment service companies.

These were simple, inexpensive but highly effective strategies that started to deliver results almost instantly. I was finally able to stand out in the crowded market. My phone began to ring off the hook. I got new customers and referrals that actually paid me the money I knew I was worth. And every time I spent a dollar on advertising, it came back to me with its friends!

Can you imagine what it's like to have a constant stream of new customers and referrals every day? Increasing my car count and getting paid more for the jobs I was doing led me to double my income in just 12 months. Within a short period of time, I took my auto repair business from the brink of bankruptcy to over 7 digits in annual sales.

Right now, I want to share the secrets of these strategies with you so that you can enjoy the success that I've had. Every one of the strategies is detailed in my free report, "7 Insider Secrets Revealed". But to really help you get started fast, as a **Bonus**, I would like to offer you a totally free, Personal 1-On-1 Thirty One Minute Consultation (valued at $300 – Yours Free) so I can answer any of your marketing and advertising questions. I'll tell you how to get both in just a minute.

Right now, you're probably wondering why I am willing to share this information. I am giving away this information and my personal help because I am 'fed up' and sick and tired of all the bad information that's being peddled like '*fake medical cures*' by pitchmen in a traveling carnival. There are no '*get rich quick*' schemes, '*magic bullets*' or '*shiny blue-buttons*' that produce fountains of cash. And right now, you **DON'T** have the rest of your life to spend '*playing around*' on Facebook™ or Twitter™!

Secondly, I am offering my personal consultation so that you can fast track your success immediately. Just as if you needed legal advise or help with financial planning, you would consult a professional or specialist to get organized and started on the right track. I am offering you the exact same type of help with marketing your auto service business.

Right now, you can get my Free Report plus my "Ultimate, Totally Free, No B.S., No Holds Barred, Kick Butt Take No Prisoners 31 Minute Auto Repair Marketing Consultation" that will answer any of your questions and show you how to fix the marketing problems that you're having. These 31 Minutes alone could easily add thousands of dollars to your business starting the very next day and it's totally free to you.

Just incase you're thinking that this is a '*come-on*' or sneaky sales pitch, I want to provide you my personal guarantee.

From the time you schedule your Thirty One Minute, 1-on-1, Personal Marketing Consultation and all the way through our discussion, if anyone, at any time tries to sell you anything or even 'hints' or 'suggests' that you should buy something from me, just say the word and I will send you **a check for $1,000** payable to you personally. That's my "Put-My-Money-Where-My-Mouth-Is-No-Weasel-Words, Rock Solid, No B.S. Guarantee!"

But before I tell you how to get all of this, there is some bad news. The bad news is that I can only offer my 31 Minute Personal 1-on-1 Auto Marketing Consultation **to the first 17 shop owners that get my report**. I'm sorry, but I have to draw the line somewhere.

So how do you get my Free Report and the 31 Minute Personal 1-on-1 Consultation? Just be one of the first 17 shop owners to download my report at **JustTheBestMarketing.com/action** or call my message line toll free at **1-888-772-2069** and leave me your contact details. We'll work fast to schedule your consultation. I won't just answer questions about your marketing problems; *I'll show you how to fix them!* Look at it this way; You've got absolutely nothing to lose and a huge profit increase to gain! **Do it NOW! Otherwise I Can't Help You!**

- Matthew Lee - Author - Marketing Specialist

DOWNLOAD THE REPORT AT
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I WILL E-MAIL DETAILS FOR THE CONSULTATION
OR CALL MY MESSAGE LINE TOLL FREE
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Reader Reply No.16

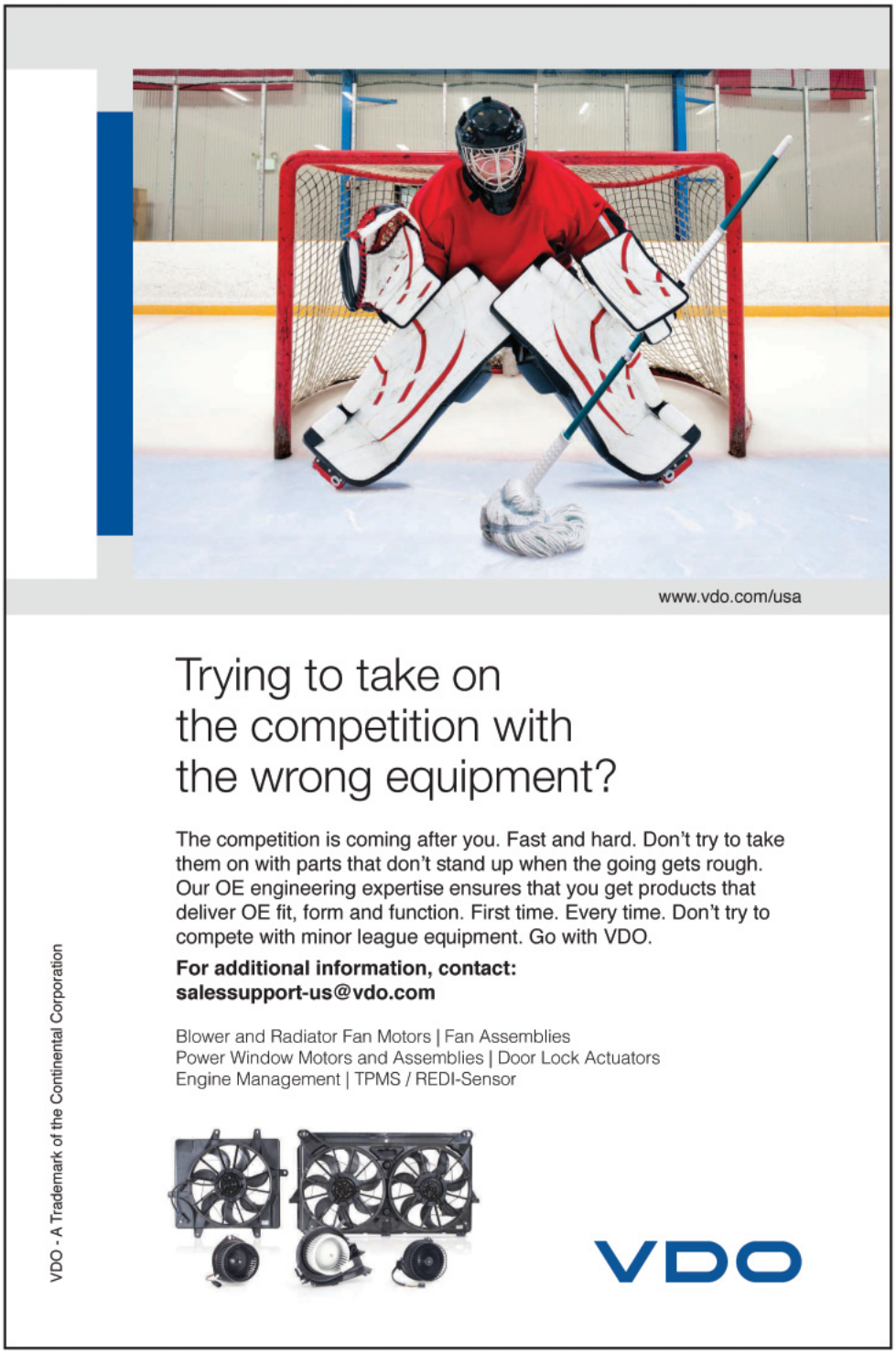
a more robust design and increased versatility.
The new valve will be available for sale in Jan. 2012 and will retain its properties when exposed to new organic acid technology (OAT) long-life coolants. The valve also performs well with conventional coolants at elevated temperatures and pressures. New features on this valve include customization – choose what best fits your application; numerous connection options with copper tube attachments; robust valve bodies made from DuPont Zytel Plus to resist hot coolant,

other hot fluids and aggressive chemicals; and long-wearing, low-friction valve stems.
For more information about the new heater valve, contact Bill Gordon at *BGordon@bergstrominc.com*.

R.R. No. 105

Errecom's new oil and dye for R1234yf

Locating leaks and lubricating A/C systems with R-1234yf requires special service considerations. That's why Errecom from Corzano, Italy has announced a new A/C oil and U/V dye for R-1234yf to conduct specific maintenance and service on these systems and, to meet the unique requirements of today's vehicles A/C systems. Errecom chemical additives for R-1234yf are available in different sizes (one-shot cartridges and bottles) and always very safe for the A/C compressor and the recovery units.
Errecom is one step forward in developing exciting and innovative products designed to meet the needs of today's automotive operation. Please visit our website *www.errecom.it* and come visit us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Reader Reply No. 61

NEW PRODUCTS & SERVICES

in our booth, No. 218 at the MACS Convention and Trade Show in Las Vegas, Nevada, January 18-20, 2012.

R.R. No. 106

Tracerline's new kit

The Tracerline TP-8646 Optimax Jr/EZ-Shot A/C Kit is a complete

leak detection kit that makes it easy for technicians to spot all air conditioning leaks quickly and efficiently. The kit features the Optimax Jr cordless compact LED flashlight with an inspection range of up to 6 feet.

Also included in the kit are the EZ-Shot dye injection gun with hose and coupler; an 8-oz. BigEZ universal dye cartridge (treats up to 64 vehicles); an 8-oz spray bottle of Glo-Away dye cleaner, plus fluorescence-enhancing glasses and underhood labels. All these components are stored in a rugged plastic carrying case.

For more information about the TP-8646 Optimax Jr/EZ-Shot A/C Kit, visit *www.tracerline.com*.

R.R. No. 107

Invitation from Omega

Omega Environmental Technologies invites you to Booth 605 at the MACS Trade Show. The company will be releasing their new Heavy Duty and Off Road Illustrated and Applications catalog, plus new "Alpha by Omega" products.

OMEGA ENVIRONMENTAL TECHNOLOGIES

Also be sure to check out their new VinScanner application for iPod, iPhone and iPad devices as well as the enhancements to their web site including a new search engine for HD and off road vehicles.

R.R No. 108

Send information on your new product or service to jt@macsw.org. All releases may be edited and publication does not constitute endorsement by MACS Worldwide.

Your coolest choice for no-idle systems is Bergstrom.

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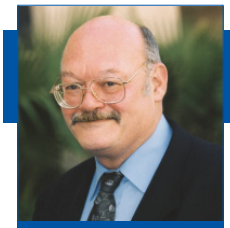

Elvis Hoffpauir

Last Watch

Read all about it!

The digital edition of MACS' award-winning ACTION magazine debuted with the September/October issue, distributed to 30,000 mobile A/C and engine cooling professionals worldwide. Hopefully you have had the opportunity to examine the first couple of issues, but in case you haven't, there are reasons you should.

The first browser-based U.S. magazine was launched in October 2001. Since that time, and particularly in recent years, more and more publishers have seen the benefits of this technology.

MACS works with Nxtbook Media to produce the digital edition of ACTION and Nxtbook points out the following key benefits of the technology.

At the top of my list is "searchability." Looking for something specific? Use the built-in search feature to find your keyword or phrase anywhere in the publication. Archiving is another great advantage of the digital magazine. Issues can easily be saved to your hard-drive to be accessed later.

With the power of the Web, digital magazines can feature bonus content, including audio, video and animation that add new dimensions to the reader's experience.

In addition to looking for information, our readers also shop for parts, products, tools, equipment and services, and most advertisements today include website URLs. The digital magazine offers readers hot links directly to advertiser sites.

And last but not least, digital magazines are "green." Every page you read online is a page that didn't go through the paper mill.

Digital content is king. The more people use hand held mobile devices, tablets, smart phones, etc. the more important the access to digital content becomes. Did you know 38% of mobile device users are making purchases through those devices?

Digital ACTION is one more way for the Mobile Air Conditioning Society to leverage technology to serve the informational needs of our members and the industry. We encourage you to make the most of this resource.

Be Car Care Aware™

Elvis Hoffpauir,
Editor -in-Chief
You can reach Elvis at elvis@macsw.org

MACS MOBILE AIR CONDITIONING SOCIETY WORLDWIDE

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